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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/817,797

03/27/2001

Michael Hermann

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11/07/2006

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EXAMINER

CHANG, AUDREY Y

ART UNIT

PAPER NUMBER

2872

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/817,797

Applicant(s)

HERMANN, MICHAEL

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3 and 4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37.CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 15, 2006 has been entered.
2. This Office Action is also in response to applicant's amendment filed on August 15, 2006, which has been entered into the file.
3. By this amendment, the applicant has amended claims 1 and 3-4.
4. Claims 1 and 3-4 remain pending in this application.
5. The rejections to claims under 35 USC 112, first paragraph, set forth in the previous Office Action still holds, for the reasons stated below.

Response to Amendment

6. **The amendment filed August 15, 2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure.** 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the **amended claims 1 and 3-4** recite the following phrases (1). A light source means ... at a *known location*, (2). A first two-dimensionally readable optoelectronic sensor ... at a *known location*... (3). And computing the *relative angular offset position* of the two elements with respect to each other **based** on the coordinates detected ". The specification simply **FAILS** to give explicitly support for such phrases and features.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **Claims 1, and 3-4 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The reasons for rejection based on the newly added matters are set forth in the paragraph above.

9. **Claims 1 and 3-4 are rejected under 35 U.S.C. 112, first paragraph**, as based on a disclosure which is **not enabling**. The *specific* output signals from each sensors and the specific information concerning the light source, (such as either the measurement of pulse time of the light travels to each sensor or the specific distance set for the light source means to each of the sensors), the *function* of the second sensor and the fixed relative alignment between the two sensors as *related* to the rest of the information, **and** the *so-called known locations* of the light source and the first and the second two-dimensionally readable optoelectronic sensors being defined *in what coordinate system* are *critical* or *essential* to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). At this juncture, the specification and the claims **only teach** to have the **at least one** of the *sensors* connected to the second element, (in fact **claim 4** even fails to provide **any connection between the light source and the sensors to any of the elements which makes the detection even more mysterious**) and having the light *reflected* from the first sensor to the second sensor, (in claims 1 and 4 it is not clear if the second sensor connects to any of

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the element and in claim 3 both the sensors are on the second element), but no relative information is given concerning each signal from the sensor to the light source means, *which is connected to the first element*. To the most, the two sensors only have information to determine the *relative position* between the two sensors but **not the two elements**. It is not clear how can the “*relative angular offset*” of the *light source mean*, (or two elements) be determined “*based on the coordinates detected*”, (amendment to the claims). What are these *coordinates*? **In what coordinate systems are these coordinates defined?** The applicant being one skilled one in the art would have known that the coordinates on the two sensors are **two different coordinate systems and the readings of the coordinates will be from different coordinates that has no relationship to each other**, and since it is not clear “the *known locations*” are **based on what** coordinate systems, it is impossible to determine the “relative angular offset”.

Furthermore, “*angular offset*” has to be defined with respect to a *reference point*. It is not clear what is the *reference point* here to define such angular offset. The incident light only registers one point on the first sensor and the reflected portion of the light also just registers one point on the sensor. These two points may have corresponding coordinates base on **different coordinate systems** of the two sensors but it will not be able to determine the “angular offset” of the first element from the second element, wherein the specification **fails** to make any connection between these coordinates with the two elements. The specification at this juncture really FAILS to disclose **explicitly the fundamental principle** of the operation of the device.

The applicant is once again reminded respectfully that a two-dimensional readable optoelectronic sensor is like a *camera* it can only **register** the *point* that the light strikes the sensor, the information of the point cannot be enough to determine the relative position between the light source means and the sensor, in particular the relative distance certainly cannot be determined by a point. Furthermore, the specification and the claims **fail** to teach by having the light reflected from the first sensor to the second sensor, which either are both on the second element or **not sure where** is the second sensor, (that to the

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most give relative positional information between the two sensors on the second element), will give information to determine the relative position between the first *element* and the second *element*. This process is like by measuring the length of the sofa will not tell you how *far* the sofa is located from the door or the angular offset of the sofa to the door. The claims therefore **fail** to provide workable devices.

Claims 1, and 3-4 have been amended to include the features that the light source means is connected to the first of the two elements at a *known location* and the at least one of the two sensors is connected to the second element at a *known location*. If this is the case, then simply using the two **known** locations one can *calculate* the relative location between the two elements since this means the coordinate locations of the two elements are KNOWN and can be calculated to determine the relative angular offset of the two elements WITHOUT even using the device at all. This makes the device totally redundant.

The applicant is respectfully noted that it is the requirements of 35 USC 112, that the specification **needs to provide explicitly and adequately teachings** of the enablement of the operation. At this juncture, the specification fails to provide any adequate teachings for achieving the claimed function. **Applicant's arguments based on paragraphs [0020] and [0021] of the specification are not persuasive to overcome the rejections since [0020] is just a description for a figure and [0021] is description for a PRIOR ART system (Figure 1) that does not have the disclosed and claimed arrangement of claims 1 and 3-4. Paragraph [0021] fails to provide the adequate teachings for determining the angular offset of two elements with the device claimed in claims 1 and 3-4. Also it is not clear where exactly is the point "A' " referred there it is therefore not clear where are the elements and where are the sensors as disclosed in Figure 1 discussed in paragraph [0021] which makes the description not understandable.**

Claim Objections

10. **Claims 1 and 3-4 are objected to because of the following informalities:**

(1). **Claims 1 and 3-4 have been amended** to include the phrases “known location”, that is confusing and indefinite since it is not clear with respect to what are these known locations defined that is to say it is not sure if these known locations are measured in the same coordinate system or not? The coordinate systems for the light source and for EACH of the sensors can be very different.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. **Claims 1 and 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Holzl (PN. 5,026,998) in view of applicant admitted prior art.**

Holzl teaches an *alignment measurement mechanism* for measuring the relative positions between *two shafts* (1 and 2), *serves as the two elements*, wherein the mechanism comprises a *light source* (8) for generating a light beam (s) that incidents on a first and second *optoelectronic detectors* (9 and 10, Figures 2 and 3) that are connected to the second shaft (2). The two optoelectronic detectors are two-dimensional readable sensors that each generates two dimensional position signals as shown in Figure 2. **Holzl** further teaches that a *data converter* (3) and a *computer* (4), serve as the *electronic means and computer*, are included for processing the detected positional signal of the detectors to measure the relative position of the two shafts. The two dimensional position signals generated by each of the position detector are corresponding to the **incident points** of the light on the surface of each of the detectors. The calculating

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electronics for computing the relative positions from the detected signals are implicitly included to determine the relative positions. It is implicitly true that only portion of the light incident on the first optoelectronic detector will reach the second optoelectronic detector.

It is implicitly true that the light source is located at a known location and the sensors are also located at known locations. The angular offset between the first and second element can be easily detected by measuring the light spots of the incident light registers on the two sensors (A and A', Figures 2 and 3). Since if the two elements are at the level the two spots will be aligned and if there is angular offset the straight lines connecting the two light spots will give an angular inclination that will reveal the angular offset information.

This reference has met all the limitations of the claim with the exception that it does not teach explicitly the arrangement of having the light incidents on the first detector is *reflected instead of transmitted* to the second detector. However it is implicitly true that whether the light incident on the second detector is reflected or transmitted from the first detector the **operational principle** for obtaining the relative position between the two shafts or elements do not change. Since the principle is based on calculating the positional signals detected by the two detectors about the incident points of the light on the two detectors, the modification or the difference, concerning either reflecting or transmitting light from one detector to the other detector, does not change the function of detecting and calculating the relative positions of the two shafts. This difference is therefore considered as an obvious matter of design choice to one skilled in the art for the benefit of providing different design for the measurement mechanism. Furthermore, **applicant admitted prior art** teaches that a **reflective** type optoelectronic sensor such as CMOS sensor circuit is *commercially available*, (please see page 5 lines 14-20 of the specification). It would then have been obvious to one skilled in the art to use a reflective type of detector to make the light reflected from the first detector to the second detector for the benefit of providing a more compact system.

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With regard to the housing, the references do not teach such explicitly however it would have been obvious to one skilled in the art to use a housing for the detectors for the benefit of blocking out unwanted light to reach the detectors so that the detectors detect the signals more accurately.

Response to Arguments

13. Applicant's arguments filed on **August 15, 2005** have been fully considered but they are not persuasive. The amendment to the claims have been fully considered and they are rejected for the reasons stated above. Applicant's arguments are mainly based the amendments to the claims and they have been fully addressed in the paragraphs above.

Applicant is **respectfully requested to state explicitly** how can the angular offset of the two elements be determined by the two sensors and the light source, as arranged in the claimed arrangement, in particularly when the sensors and light source have no connections with respect to the two elements as recited in claim 4. Applicant's arguments based on the "known locations" of the light source and the sensors do not solve the problem of non-enablement since firstly it is not clear *with respect* to what are these known locations defined and how are they used to determined the angular offset.

Contact Information

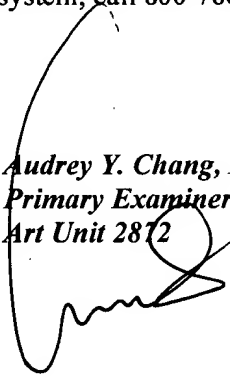
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.